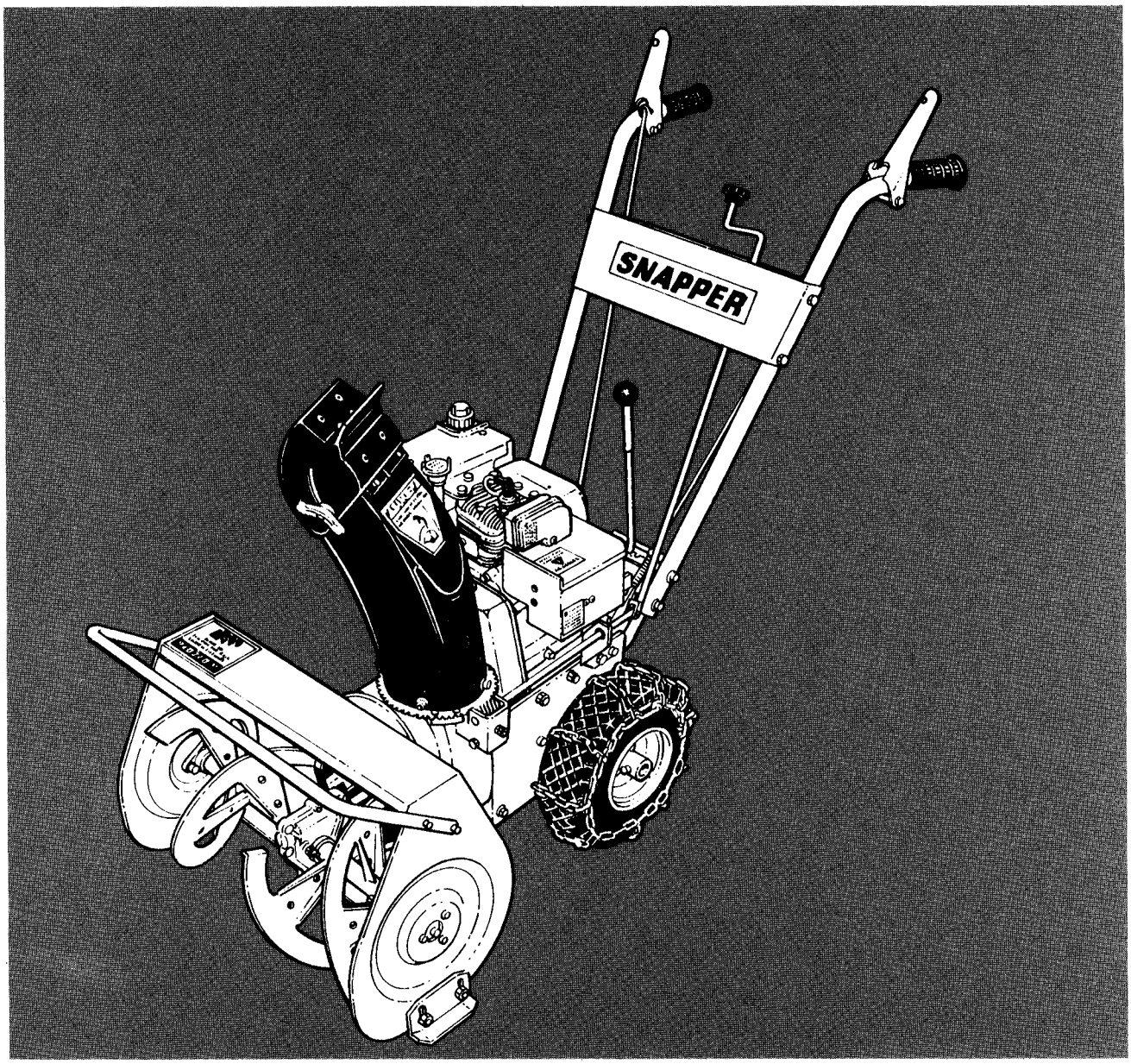
Service Manual for

SNAPPER®



Model 4220 Two Stage SNOW THROWER

SNAPPER POWER EQUIPMENT
McDonough, GA • 30253

A FUQUA INDUSTRIES Company

#07014

SCOPE

This manual contains information on familiarization, machine operation, maintenance, troubleshooting and repair for SNAPPER INTERMEDIATE TWO STAGE, WALK BEHIND SNOW THROWERS.

Only one special tool is required for the overhaul of these snow throwers. It is shown in Figure 4.13 in Section Four of this manual. Otherwise, the normal compliment of tools found in most repair shops is adequate in performing repairs put forth in this manual.

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SECTION I - FAMILIARIZATION

1.1 This manual was prepared to expedite service repairs on the SNAPPER Model 4220 TWO STAGE SNOW THROWER. At the time of writing, the data contained herein was completely up-to-date. However, due to SNAPPER'S continued improvement in design requirements, it is possible that the appearance of component parts may vary slightly from those of the actual snow thrower being repaired. This merely indicates that the machine has been improved to better fulfill its intended requirements.

1.2 NOMENCLATURE

The nomenclature drawing below (Figure 1.1) shows the essential parts of the SNAPPER Model 4220 SNOW BLOWER. It is recommended that all mechanics and other repair personnel become thoroughly familiar with the controls, components and operation of this machine before attempting any repairs.

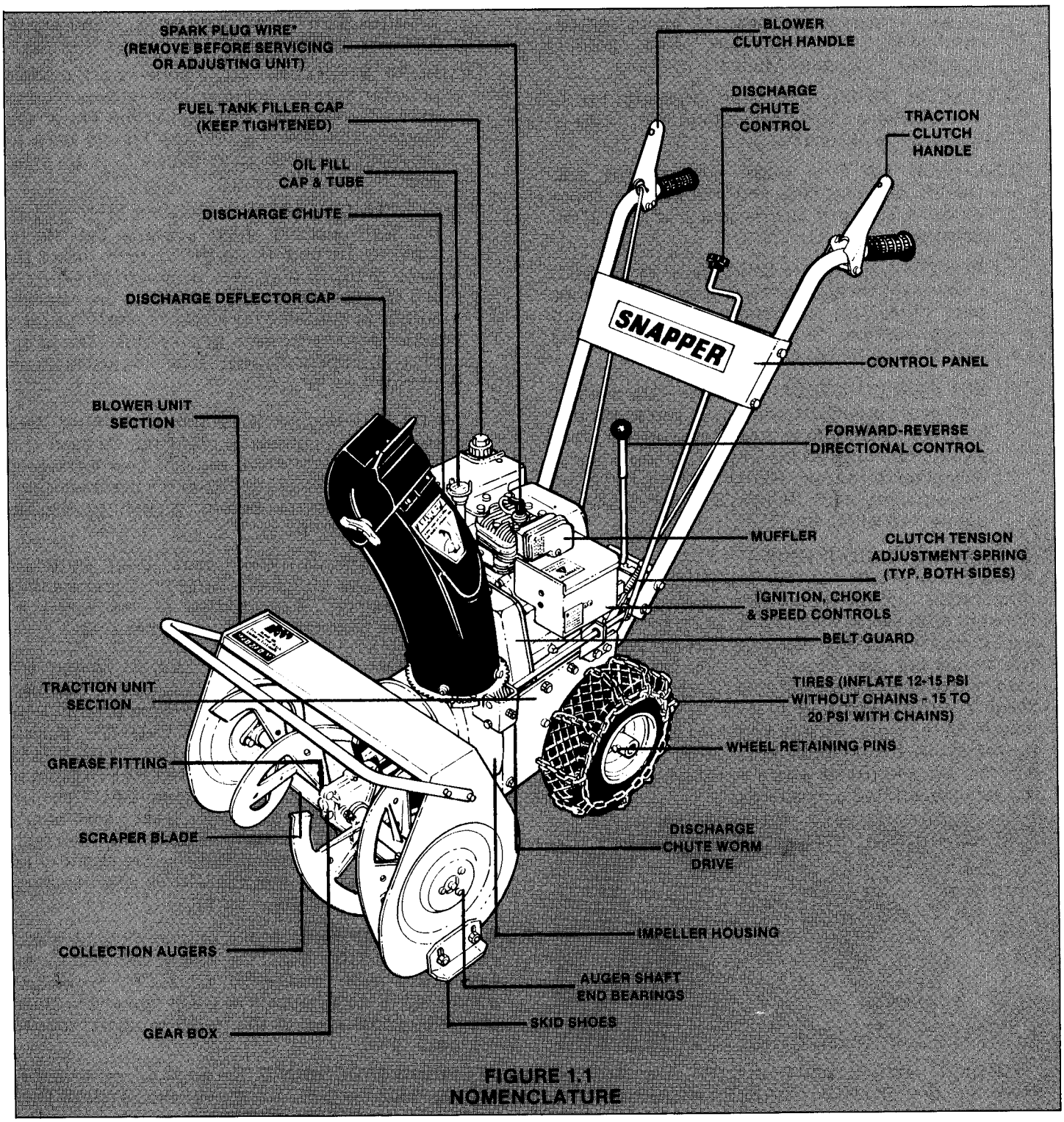


FIGURE 1.1
NOMENCLATURE

Section II - MACHINE OPERATION

2.1 Make sure that each person authorized to operate this SNOW THROWER reads this manual prior to operation and pays particular attention to safety precautions (inside front cover) and to all warning decals on the machine. Check and perform the following before each start-up.

2.2 PRE-START CHECK & ADJUSTMENTS

A. ENGINE LUBE: Check level and add oil, if needed, of weight and grade specified in the Engine Owner's Manual.

B. FUEL SUPPLY: After making sure unit is safely away from ignition-producing appliances,and in area where gasoline fumes can be dissipated, fill fuel tank with gasoline specified in Engine Manual.

C. CHECK TIRES and bring pressure up to specifications - 12-15 psi without tire chains or 15-20 psi with chains.

D. CHECK UNIT to make sure guards and shields are in place and tight. Also check blower housing to insure that it is free of all objects.

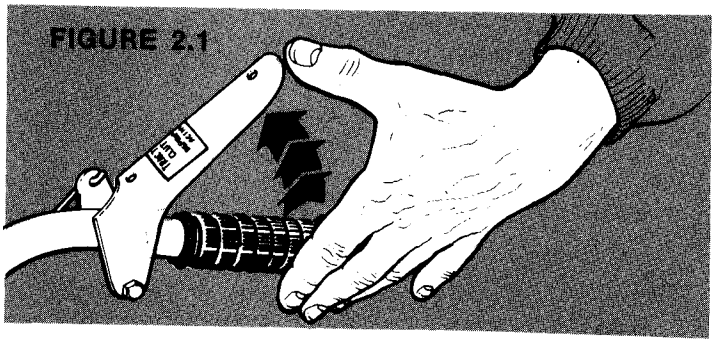
E. RESET RUNNERS to suit area to be cleared. Lower skid shoes to provide greater clearance over gravel, or raise the shoes for smooth, paved surface. Refer to Figure 3.7, SKID SHOE ADJUSTMENT.

F. SET DEFLECTOR CAP to throw snow desired distance. Loosen wing nut, push cap edge back even with the chute to throw snow up to 30 feet away, or pull cap all the way out to throw snow only about three feet. Retighten wing nut after repositioning cap. ALWAYS STOP ENGINE before repositioning.

2.3 OPERATIONAL CONTROLS

Know how to stop the SNOW THROWER quickly in preparation for possible emergency situations. Forward and reverse motion is stopped by releasing your grip on the TRACTION CLUTCH handle on the left handle bar. See Figure 2.1. The blower auger blades and impeller fan will stop rotating within five seconds* after releasing the BLOWER CLUTCH handle on the right. Stop the engines on all models by removing the ignition key. Other operational controls are discussed where pertinent under the following operating procedures.

FIGURE 2.1



*NOTE: IF rotation continues after five seconds, refer to the CLUTCH CABLE instructions for readjustment.

2.4 STARTING & WARMUP

Whenever possible, push SNOW THROWER outdoors before starting. If the unit must be started inside your garage, for example, make sure doors are wide open to provide maximum ventilation. Move the unit outdoors as soon as possible after starting. After performing the pre-start checks and services described earlier, proceed as follows:

A. **THROTTLE CONTROL**: Move control to FAST position.

B. **CHOKE**: Refer to Engine Manual for priming and/or choking details.

C. **ENGINE IGNITION**: On all units, insert key or turn key to ON position.

D(1) **ROPE STARTING**: On manual start models, pull starting rope out in smooth, steady motion until engine starts. To prolong the life of the starter rope,slowly guide the handle back to the engine rather than allowing it to snap back.

D(2) **ELECTRIC STARTING**: On units with plug-in 120 Volt electric start, connect the starter cable to the engine starter system, insert the three pronged plug into a grounded 110-volt power receptacle and depress the starter button on the cable until engine starts. Detach cable from receptacle and engine. On jump start equipped models, refer to instructions provided in kit.

NOTE: If engine does not start after five seconds of continuous cranking, release the key or start button to prevent overheating of the starting motor. Locate and correct cause of starting problem before repeating electric starting attempt.

WARM-UP PERIOD: Allow brief warm-up outside with clutches released to avoid stalling cold engine. Reset Choke as instructed in Engine Manual as the unit warms up.

2.5 OPERATION: Select desired traction speed by adjusting DIRECTION CONTROL LEVER, depress TRACTION CLUTCH handle and drive unit to area to be cleared. Depress BLOWER CLUTCH handle and proceed to blow snow. The THROTTLE CONTROL should normally be in the FAST position for best result under most conditions. CAUTION: If clogging occurs, back unit away from snow bank, release both CLUTCH handles and, as a further precaution, stop the engine and remove spark plug wire before clearing the snow from the housing and/or discharge chute.

2.6 BEFORE STOPPING: Move unit to cleared area, release TRACTION CLUTCH handle and run up to top speed with BLOWER CLUTCH HANDLE depressed to clear housing of slush and snow, thus preventing freeze-up of the impeller upon restarting next time.

2.7 STOPPING PROCEDURE: On all units, remove the key to stop engine or move the THROTTLE CONTROL to OFF or STOP.

Section III - MAINTENANCE

3.1 LUBRICATION SERVICES

Refer to the Engine Manual for lubrication requirements on the engine powering your SNOW THROWER. Your SNOW THROWER unit has five (5)grease fittings, two (2) on the augers, one (1) in the gearbox housing and two (2) on the auger shaft bearings as shown in Figure 3.1. Service these and the other general lube points as follows:

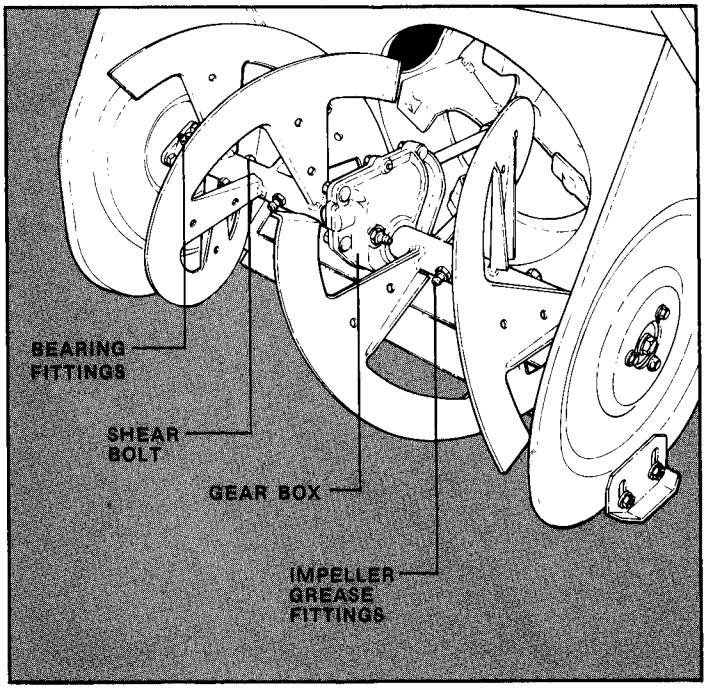


FIGURE 3.1

3.2 AUGER LUBRICATION: ONCE EACH YEAR, preferably at the end of the winter season, remove the two (2) shear bolts, apply grease to the fittings, then spin the auger to work the grease out along the auger shaft. Continue greasing and spinning augers until grease appears at both ends of each auger tube. Reinstall shear bolts and nuts after servicing. This procedure will prevent the auger shaft from rusting to the auger tube.

3.3 BEARING LUBE: ONCE EACH YEAR, apply one or two shots of grease from gun to the bearing grease fittings located at the ends of the auger shaft, just inside the blower housings.

3.4 GENERAL LUBE POINTS: ONCE EACH YEAR, or more often if rust hampers operation, spread a light coating of grease on the chute crank worm and on the underside of the gear ring at the base of the discharge chute. Squirt oil from the oil can into the gap between the inside of the discharge chute and the outside of the discharge flange of the blower housing. Crank chute back and forth while oiling to spread lubrication evenly over both surfaces. Although not absolutely necessary, you may want to remove each wheel at the end of the season and apply a coating of grease on the axle shafts. This will help to prevent rust and allow the wheels to be moved more easily from transport to traction mode during the next season.

3.5 GEARBOX LUBRICATION: Grease ONCE EACH YEAR, or more often as required, with 5 shots of **SNAPPER** "OO" grease. See Figure 3.2.

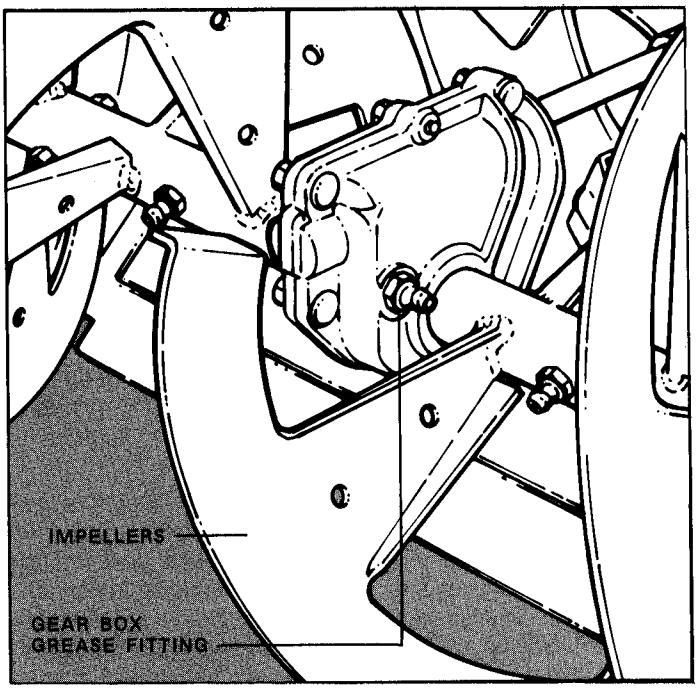


FIGURE 3.2

3.6 CHUTE CRANK SERVICE

If the chute does not crank easily after lubricating, as specified under **GENERAL LUBE POINTS**,loosen both nuts on the outside of the crank worm bracket as shown in Figure 3.3 and move the bracket slightly away from the chute gear or back in toward the ring until the chute again cranks with minimum effort. Retighten inside nut first, then jam the outside nut tight against the inside nut to lock at the new setting.

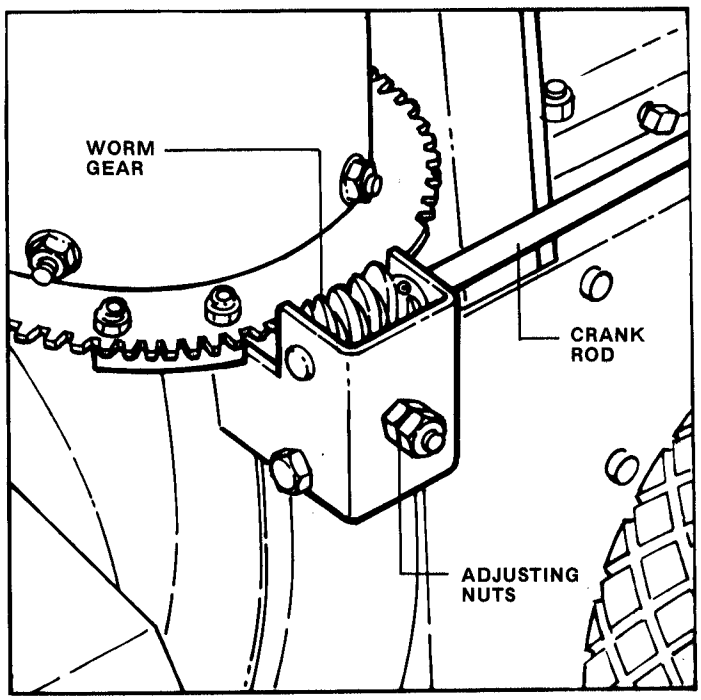


FIGURE 3.3

Section III - MAINTENANCE

3.7 BELT SERVICE

Belts do not require attention at any specific interval, but should be checked if performance deteriorates. This could occur due to slippage of worn or loose belts. Check and adjust tension of clutch cables first as described in the CLUTCH ADJUSTMENT section. If performance continues to be poor, after clutch cable tension has been corrected,then check belts. **MAKE SURE ENGINE IS STOPPED AND SPARK PLUG WIRE DISCONNECTED** before working on the belts.

NOTE: Blower rotation should cease within five seconds after clutch handle is released. If rotation continues after five seconds,cable may be too tight. If readjusting the cable does not correct the stopping time, check to make sure the idler return spring is connected and that the idler is properly set. See your **SNAPPER** Dealer to have this condition corrected.

3.8 BELT TENSION: Tension on the traction drive belt is automatically maintained by an individual idler spring. After removing the belt guard and bottom cover, check to make sure this spring is intact and properly installed. If the spring is properly connected, check for excessively worn belts. Notice the return spring on the idler for the blower drive - this spring activates the brake. The idler should always return to braking position! Tension of the blower drive belt, which is on the ¾ dia. engine drive pulley, is adjusted by loosening and repositioning the idler pulley. To increase tension, loosen the idler pulley retaining nut, hold the idler arm and push the pulley tighter against the belt. See Figure 3.4. Retighten nut after repositioning and check for proper clutching action with blower clutch handle released. Tension of the traction belt on the inside groove is non-adjustable. Before reinstalling belt guard,check to make sure the belt guide on the right side is about 1/16" away from the outside surface of the blower belt with clutch engaged. Adjust the guide by loosening bolts and moving guide.

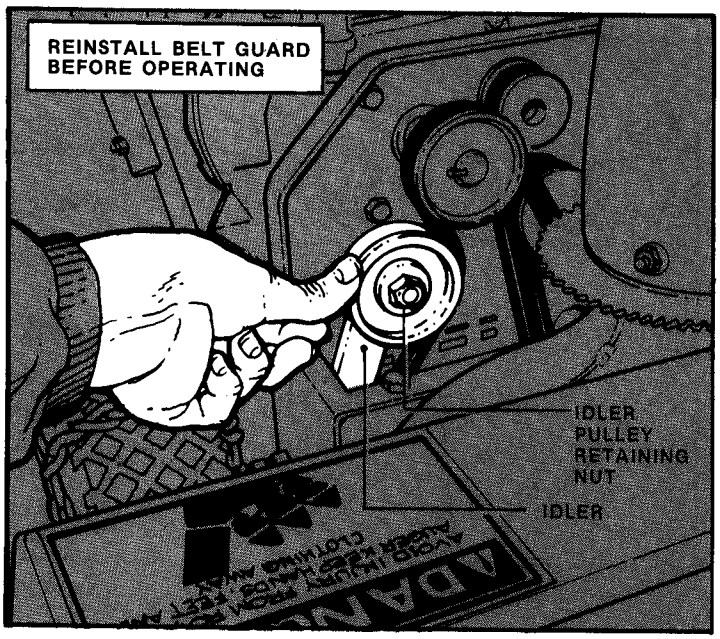


FIGURE 3.4

3.9 CLUTCH CABLE ADJUSTMENT

If slippage is noted, check tension of both clutch cables. When properly adjusted, the cables should be completely slack with clutch handle released and tight when the handle is fully depressed. The springs on both cables should deflect 3/8" when the handle is depressed. To adjust cable length, (shorten or lengthen), loosen jam nut and rotate adjuster sleeve. Retighten jam nut.
See Figures 3.5 and 3.6.

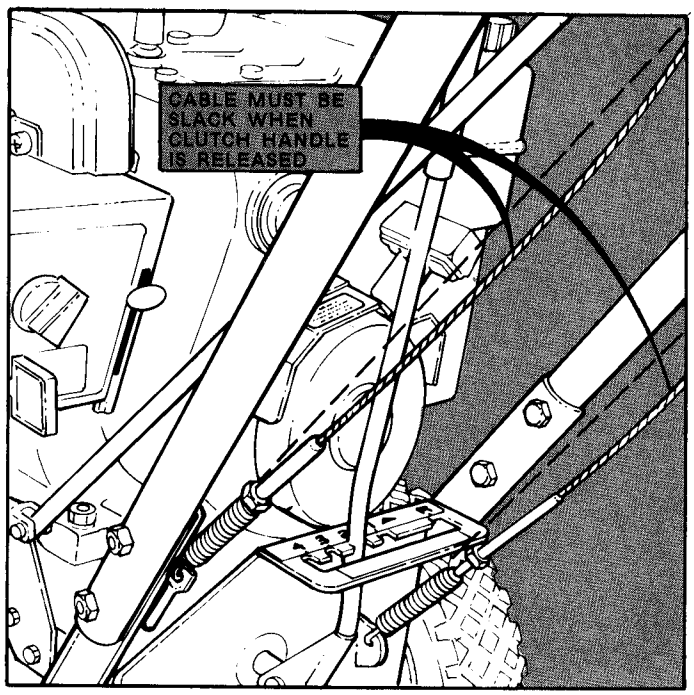


FIGURE 3.5

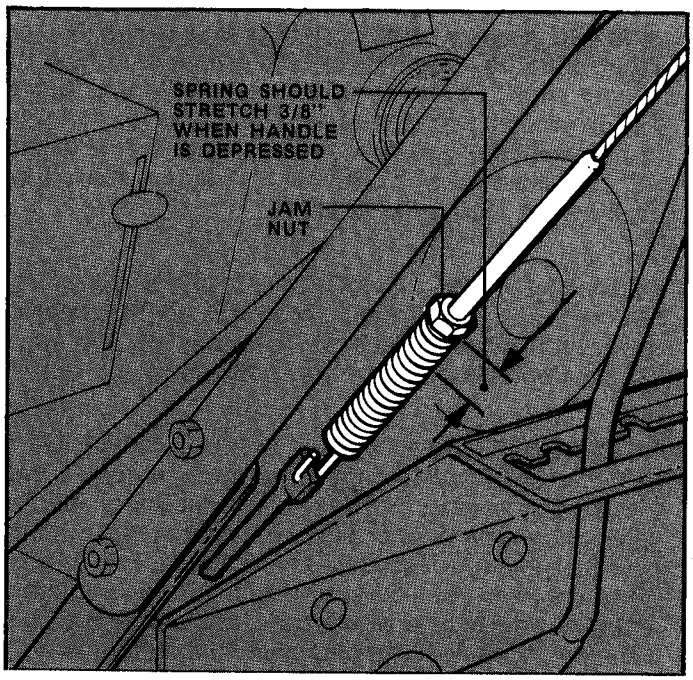


FIGURE 3.6

3.10 SKID SHOE ADJUSTMENT

The skid shoes should be lowered to raise the blower housing to clear gravelled or rough surfaces. If necessary,adjust until almost even with the edges of the housing to allow clearing down to smooth paved surfaces. Note that the skid shoes can be installed upside down to track better over icy or hard-packed surfaces. To adjust the skid shoes, block under the lower edge of the blower housing. Loosen the retaining nuts and slide shoe up or down to desired height. Retighten the nuts. Set both skid shoes in the same position. See Figure 3.7.

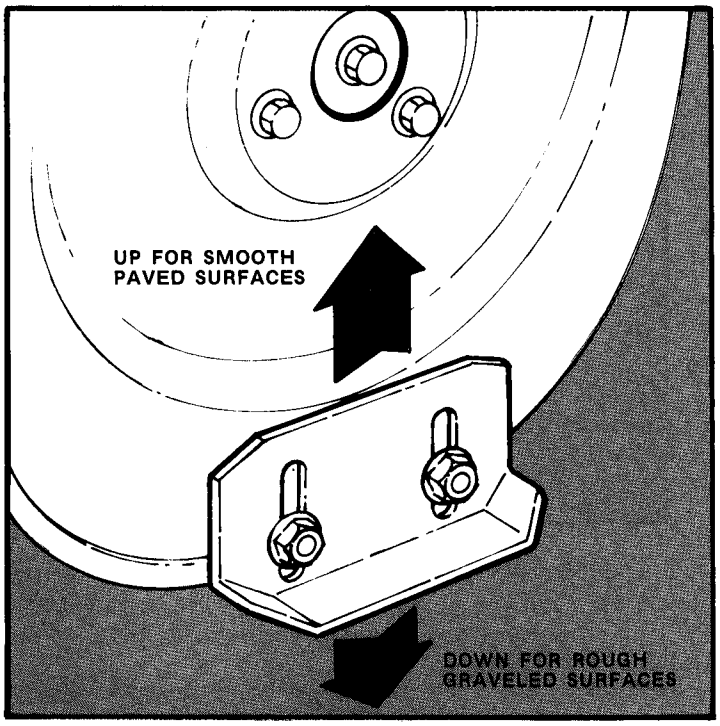


FIGURE 3.7

3.11 SERVICE ASSISTANCE

Contact your **SNAPPER** Dealer for replacement parts or for assistance when service is needed to keep your SNOW THROWER in top condition. To obtain the correct parts or advice for your particular model, always report the model and serial numbers as found on the nameplate attached to the frame. For engine parts and service, contact the engine **manufacturer's** dealer in your area. Complete PARTS and SERVICE (Overhaul and Repair) Manuals are available for your SNOW THROWER at nominal cost. Order these from your **SNAPPER** Dealer.

Service Notes

SECTION IV - OVERHAUL AND REPAIR

4.1 SEPARATING TRACTION AND BLOWER UNITS

A. Remove discharge chute. See Figure 4.1.

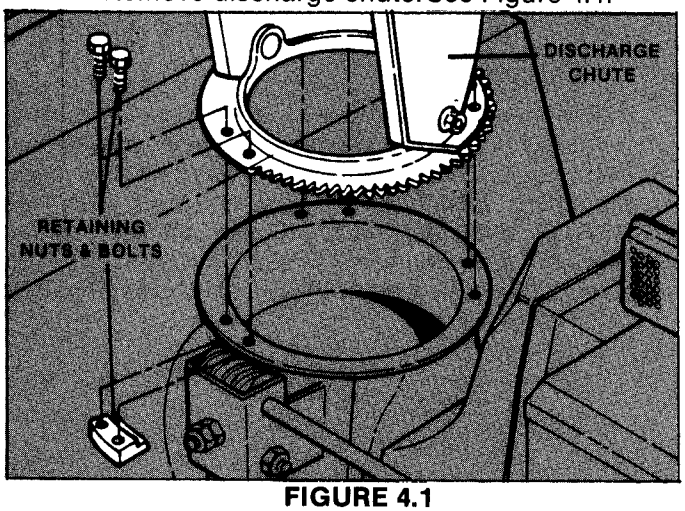


FIGURE 4.1

B. Remove top belt guard. See Figure 4.1A.

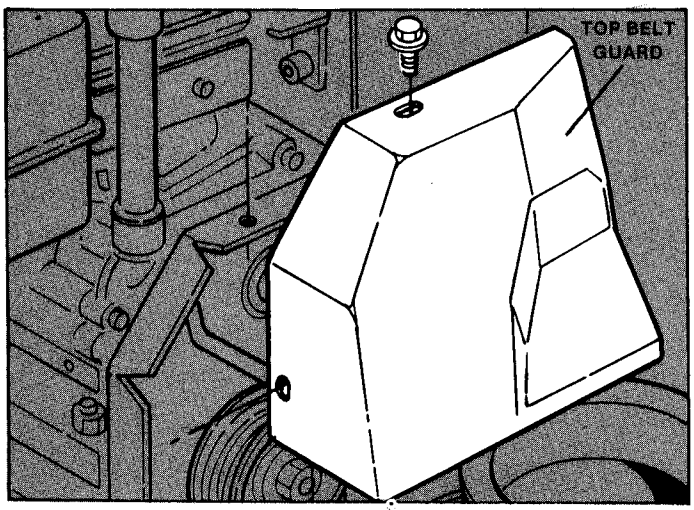


FIGURE 4.1A

C. Remove bottom cover. See Figure 4.1B.

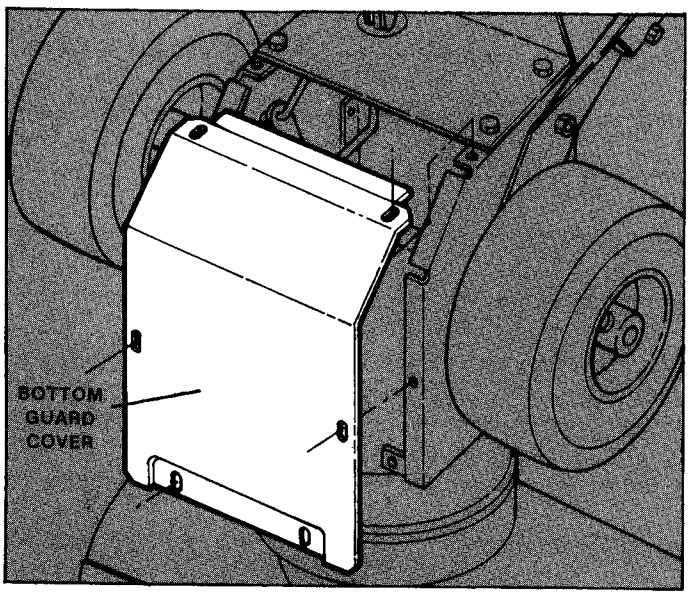


FIGURE 4.1B

D. Remove drive and auger belts (Refer to 4.3)

E. Remove discharge chute worm gear adjusting assembly. See Figure 4.2.

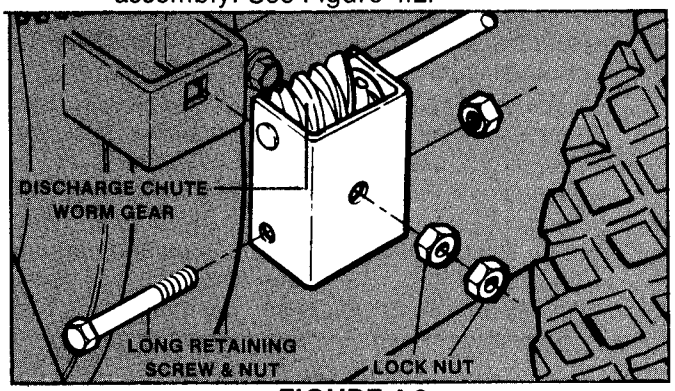


FIGURE 4.2

F. Remove top L.H. side bolt using a ratchet fitted with universal extension. See Figure 4.3.

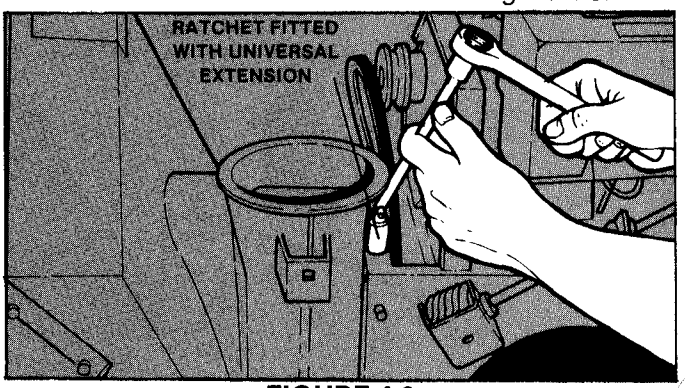


FIGURE 4.3

G. Remove 2 bolts from R.H. and L.H. sides.

H. Carefully lower rear (traction) section to separate units. Move traction unit out of way. See Figure 4.4.

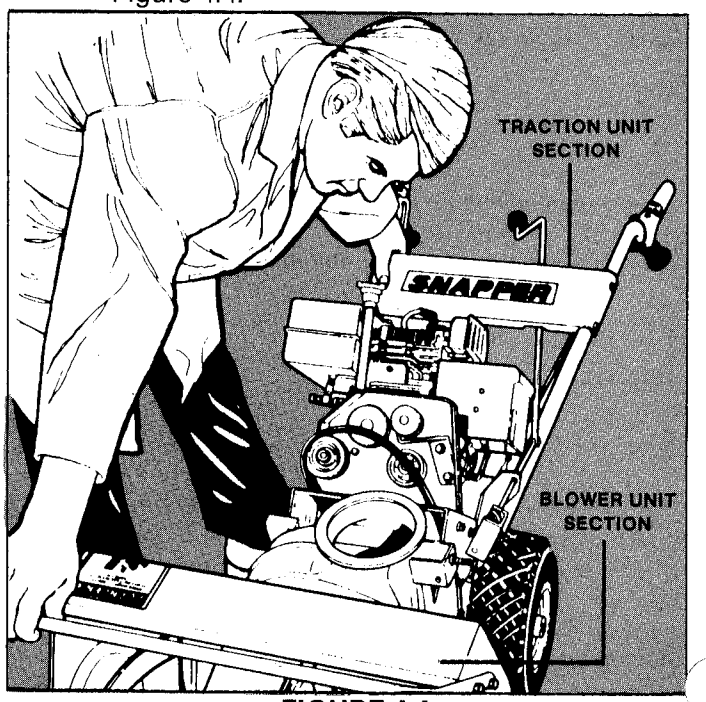


FIGURE 4.4

NOTE: Exercise caution when separating traction and blower units. To prevent damage to the traction unit, gently lower it to the floor as sections become separated.

4.2 DRIVE BELT(S) - REMOVAL AND INSTALLATION

4.3 BELT REMOVAL (TOP SIDE)

Caution. Remove spark plug wire!

A. Remove discharge chute.

B. Remove top belt guard.

C. Loosen top screw of flat belt guide and move guide away from belt. See

D. Fit a long, 9/16" boxed end wrench over the traction drive idler pulley nut.

E. With the heel of your right foot resting on top of the L.H. tire, press the wrench down with your toe to pull the idler away from the traction drive belt. See Figure 4.5.

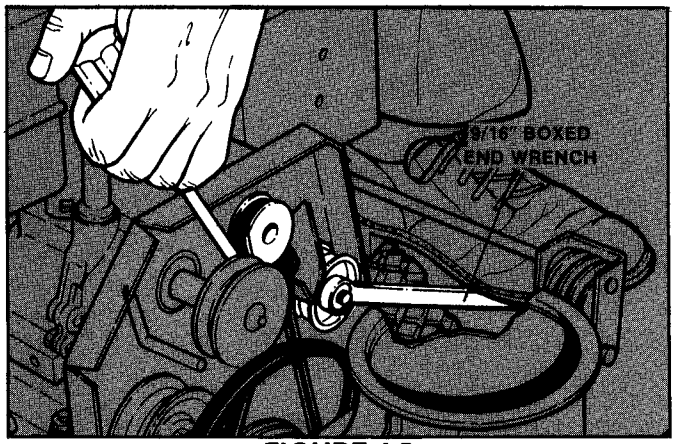


FIGURE 4.5

F. Using a smooth punch or screwdriver to work the belt, roll the engine with the starter rope and remove traction drive belt.

G. Remove blower section drive belt by rolling the engine while guiding belt out of drive pulley.

4.4 BELT REMOVAL (UNDER SIDE)

A. Tilt machine on end and remove bottom cover. Refer to Figure 4.1B.

B. Remove R.H. wheel.

C. Move shift lever to center (slow) position. See Figure 4.6.

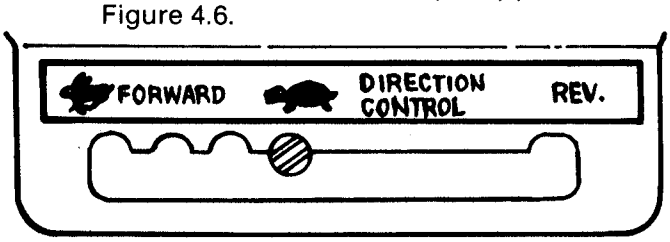


FIGURE 4.6

D. Remove bearing flange screws.See Figure 4.6A.

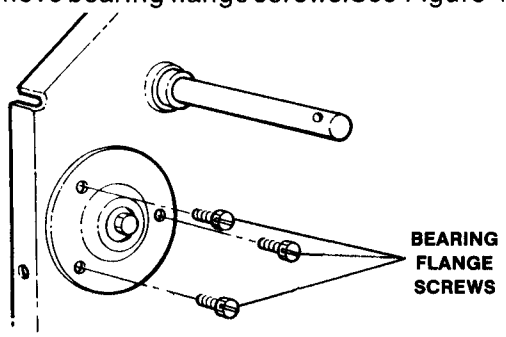


FIGURE 4.6A

E. Remove hexagon shaft through bearing hole on R.H. side. See Figure 4.6B.

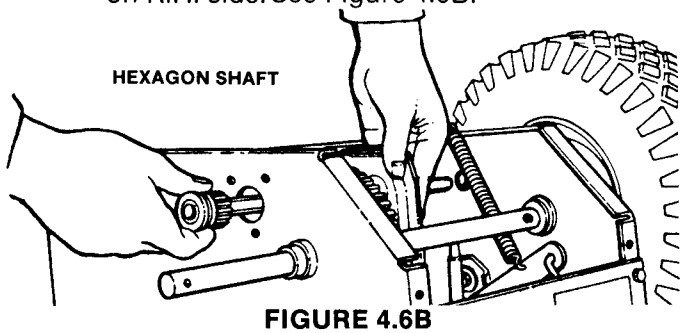


FIGURE 4.6B

NOTE: Bearing may be difficult to remove. If so, lightly tap with a soft-faced mallet to loosen.

F. Tilt the chain case sideways and remove. See Figure 4.6C.

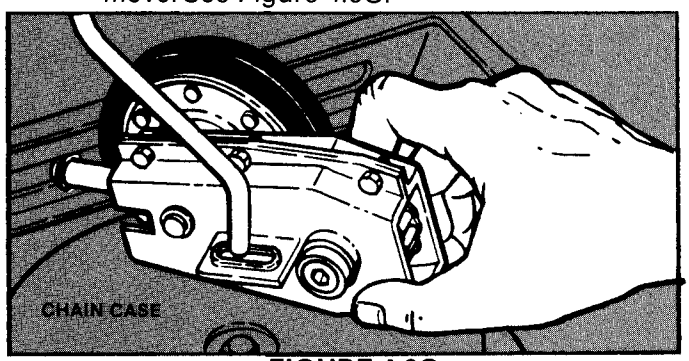


FIGURE 4.6C

G. Remove drive belt(s).

1. Depress BLOWER CLUTCH lever and remove belt from large pulley first.
2. Remove belt from small pulley.

H. Install new belt(s) as required.

1. Install belt on small pulley first.
2. With BLOWER CLUTCH lever depressed, install belt on large pulley (make sure it is inside flat belt guide).
3. Reassemble components in reverse order of above.
4. Adjust drive belt idler for approximately 1/2" travel (± 1/8"). See Figure 4.7

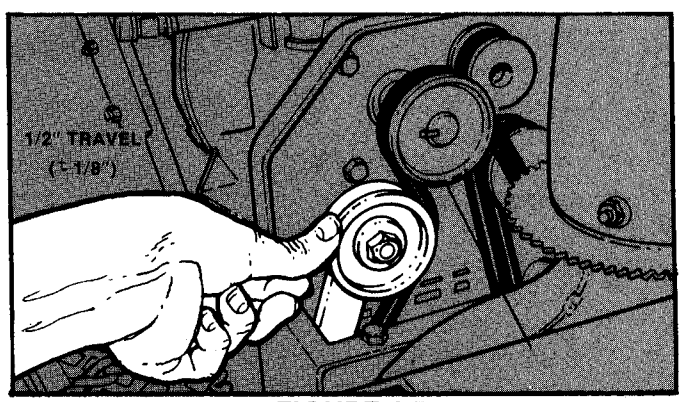


FIGURE 4.7

4.5 CHANGING DRIVEN DISC (RUBBER-TIRED)

A. Tilt machine on end and remove bottom cover.

B. Remove R.H. wheel.

C. Move shift lever to center (slow) position.

D. Remove bearing flange screws.

E. Remove hexagon shaft through bearing hole on R.H. side.

NOTE: Bearing may be difficult to remove. If so, lightly tap with a soft-faced mallet to loosen.

F. Tilt the chain case sideways and remove.

G. With chain case on work bench, remove the 5 screws from the disc retainer. See Figure 4.8.

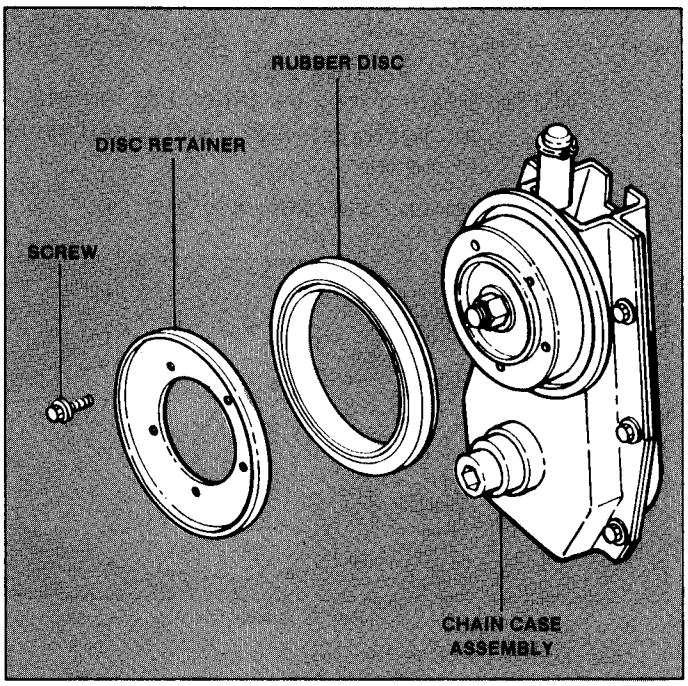


FIGURE 4.8

H. Replace rubber disc.

I. Reinstall disc retainer (Do not overtighten screws)

NOTE: Use a nut driver when reinstalling disc retainer. A 3/8" ratchet with reducer provides too much leverage advantage.

4.6 CHAIN CASE REPAIR

A. Tilt machine on end and remove bottom cover.

B. Remove R.H. wheel.

C. Remove chain case assembly.

D. With chain case on work bench, remove the rubber-tired, driven disc by removing nut, disc, washer and woodruff key.

E. Slide hexagon shaft out of gear case towards side with driven disc.

F. Disassemble chain case.

G. Inspect bearings and bushings. Replace as required by using a hammer and wooden block to seat bearings.

H. Apply a small amount of SNAPPER 00 grease to sprockets and roller chain and then reassemble chain case.

I. After reassembly of chain case, insert hexagon shaft through bronze bushings and tap shaft lightly with a rubber mallet to align bushings. See Figure 4.9.

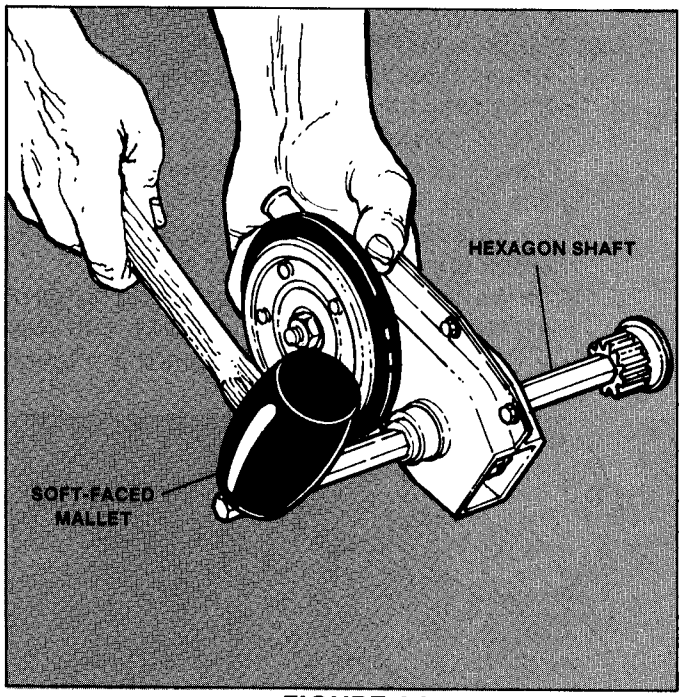


FIGURE 4.9

NOTE: Small gear on hexagon shaft can be replaced by removing screw and bearing from shaft.

4.7 REPLACEMENT OF LARGE DRIVE GEAR

A. Tilt machine on end and remove bottom cover.

B. Remove R.H. wheel.

C. Using correctly sized punch, drive out roll pin from large gear. See Figure 4.10.

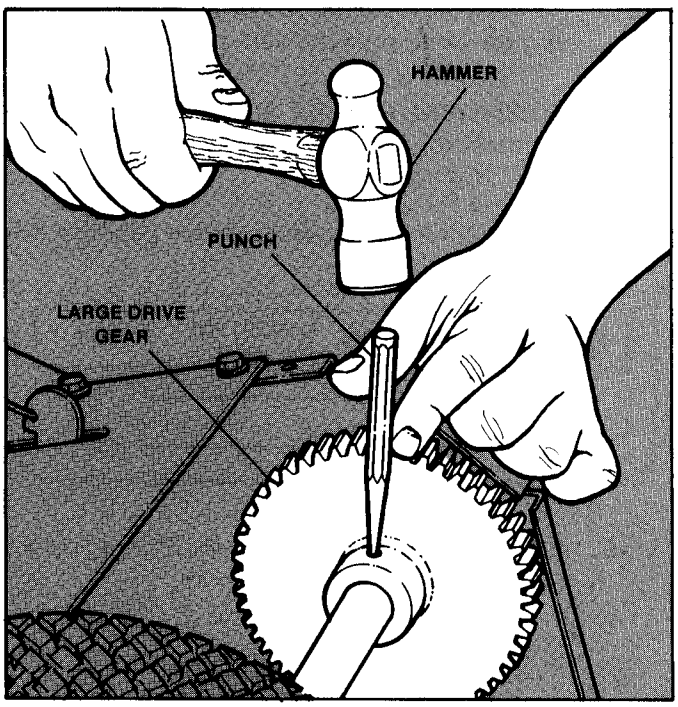


FIGURE 4.10

D. Drive out roll pin on opposite end of shaft.

E. Remove shaft from L.H. side until drive gear can be removed.

NOTE: During disassembly, observe that there is a thrust washer on the outside of the drive gear and also one outside the L.H. roll pin.

F. Inspect the axle. If it doesn't require replacement, then install the new drive gear and thrust washer (between gear and frame) and slide the axle back through the R.H. bushing.

G. Reinstall roll pins, making sure that thrust washers are correctly located.

H. Replace wheel and bottom cover.

4.8 CLUTCH YOKE AND FRAME BRACE

The clutch yoke and frame brace, should either need replacing, are accessible from the bottom side fo the snow blower after removal of the chain case and axle assemblies. Replace as follows:

A. Tilt machine on end and remove bottom cover.

B. Remove axle assembly.

C. Remove chain case assembly.

D. Unhook the traction bellcrank tension spring from the frame and bellcrank. See Figure 4.11

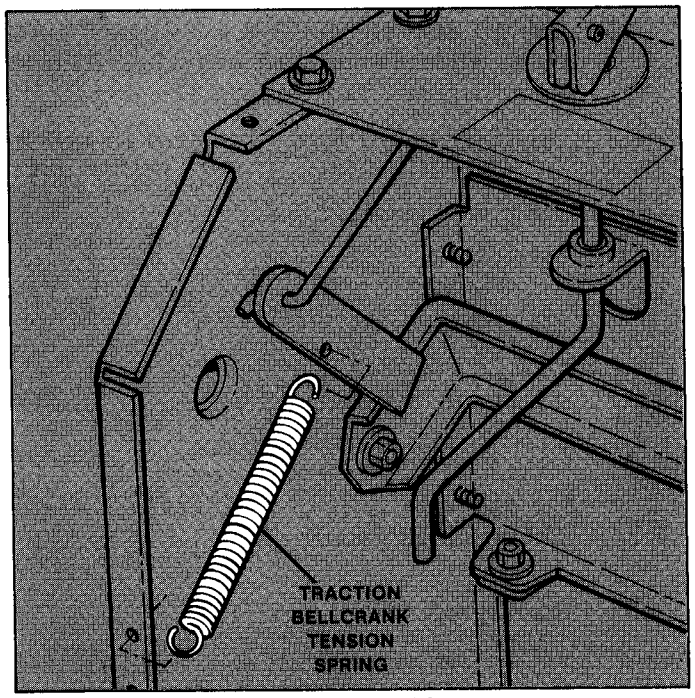


FIGURE 4.11

E. Disconnect the "s" hook from the traction clutch cable and rod.

F. Remove the bolts, screws and thrust washers from each side of the clutch yoke.

G. Remove yoke and install replacement yoke in reverse order of above. See Figure 4.12.

H. If frame brace needs replacing, then, before reinstalling clutch yoke, remove engine, blower clutch bellcrank assemblies and frame brace. Replace as required.

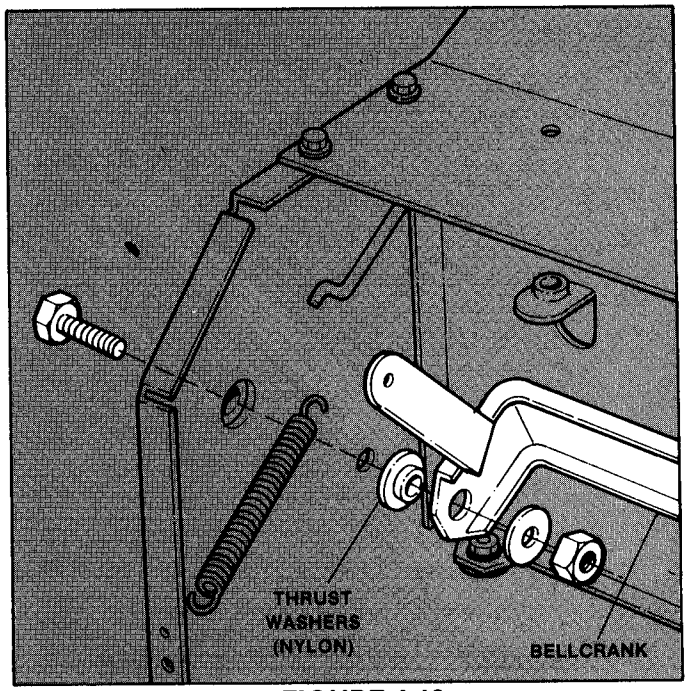


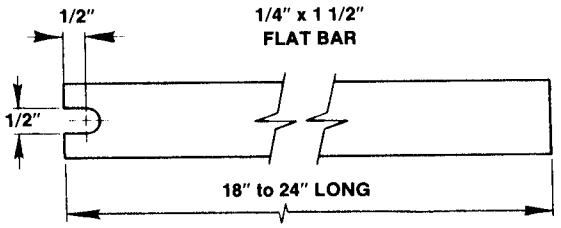
FIGURE 4.12

4.9 SHIFTER REMOVAL

Replacement of the shifting lever and shifting linkage are as follows:

A. SHIFTING LEVER REMOVAL/REPLACEMENT

1. Remove shifter knob.
2. Construct special tool as shown in Figure 4.13.



SPECIAL TOOL
FIGURE 4.13

3. Place special tool under linkage compression spring pin and across axle. See Figure 4.14.
4. Pushing down on end of tool to compress spring, drive out roll pin holding shifting lever to linkage rod.
5. Remove and replace lever in reverse order of above.

B. SHIFTING LINKAGE REMOVAL/REPLACEMENT

1. Remove SHIFTING LEVER. See above.
2. Remove CLUTCH YOKE.
3. Remove cotter key and retaining pin from beneath compression spring.
4. Remove shifting linkage rod, spring and bushings. Replace required components and reassemble in reverse order of above.

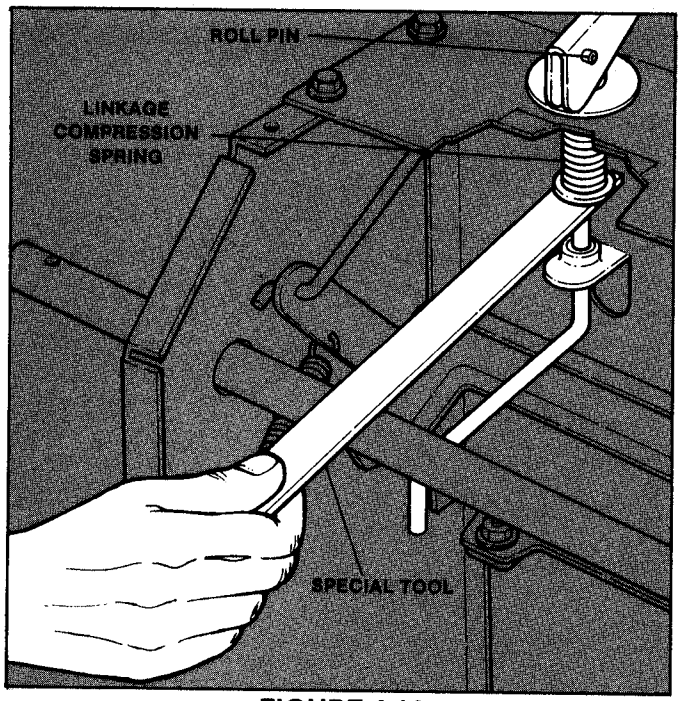


FIGURE 4.14

4.10AUGER (FRONT) SECTION REPAIR

The auger section, being the front most part of the blower unit, cannot be repaired until the traction and blower units are separated.

A. Using a pair of snap ring pliers, remove the retaining ring from the impeller shaft on the drive plate end. See Figure 4.15.

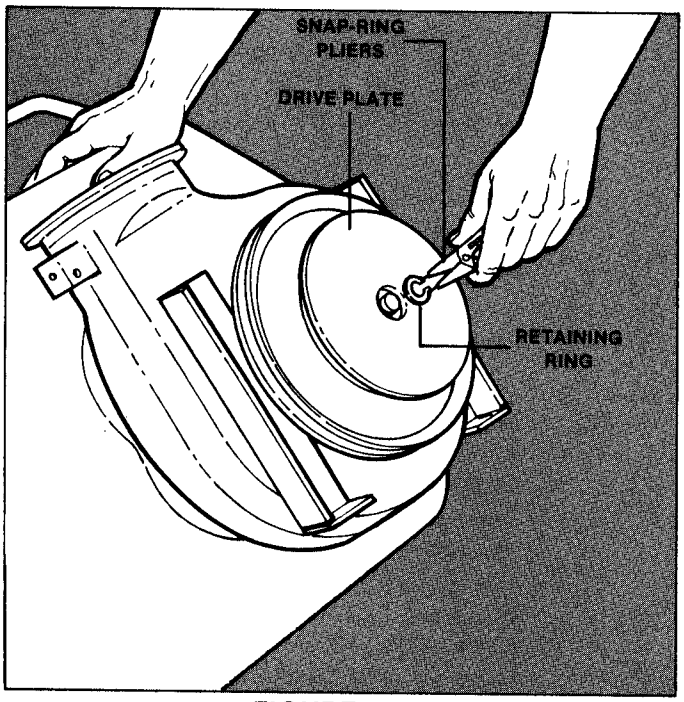


FIGURE 4.15

B. Slide drive plate off end of shaft and inspect drive plate bearings. Replace as necessary.

C. Loosen the allen head set screws located underneath the drive pulley. See Figure 4.16.

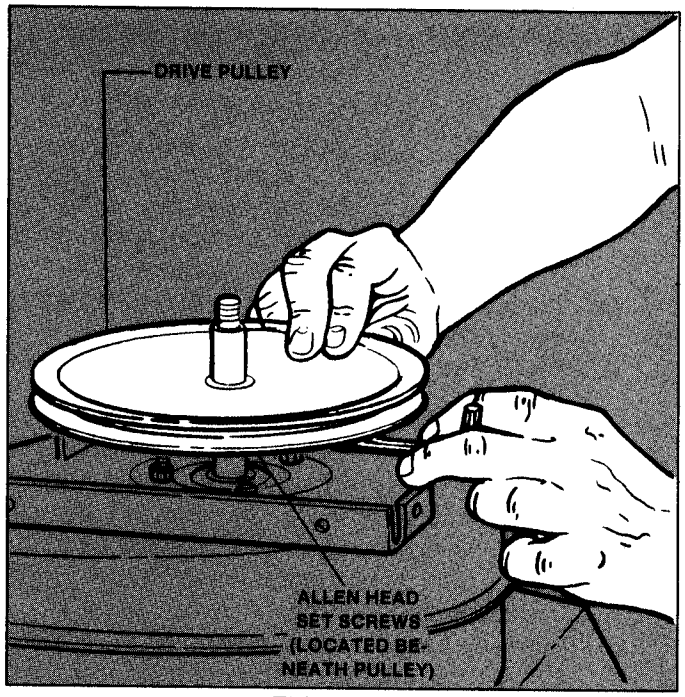


FIGURE 4.16

D. Using a wooden handle as a pry bar, lift up on pulley while tapping shaft with rubber hammer. Remove pulley. See Figure 4.17.

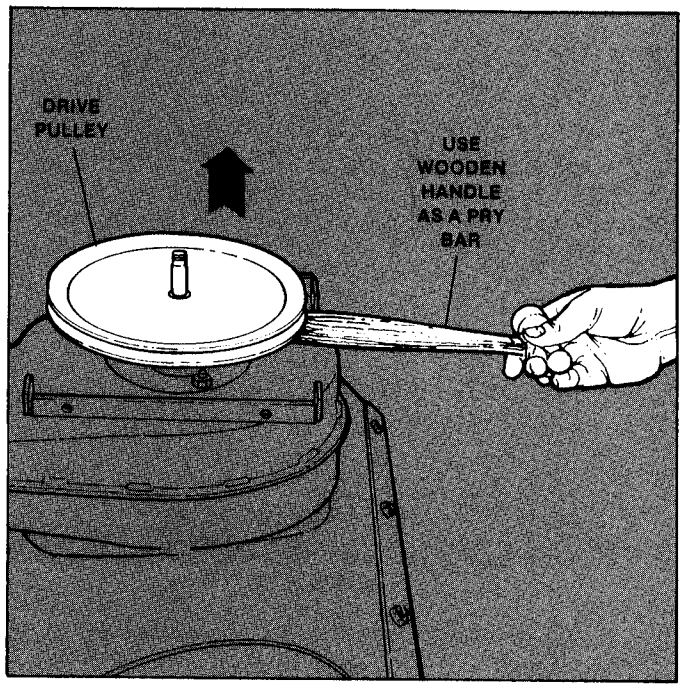


FIGURE 4.17

E. Remove woodruff key and spacer from shaft.

F. Remove nuts and bolts from auger shaft bearings. See Figure 4.18.

G. Remove center bearing bolts on both sides of auger.

NOTE: To remove auger assembly, (augers, axle, gearbox, drive shaft and impeller) remove the three bolts from the drive plate bearing mount after the auger end bearing nuts and bolts have been removed.

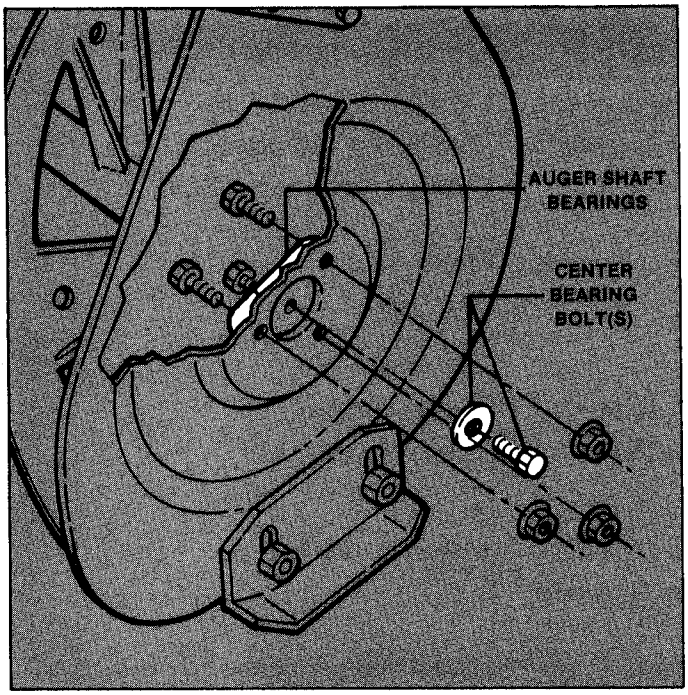


FIGURE 4.18

H. Remove auger assembly.

I. Remove shear bolts from augers.

J. Remove bearings from ends of shaft.

NOTE: When reinstalling bearings, MAKE SURE that grease fittings are facing forward.

K. Remove augers, noting that the tabs on the augers face towards center with their flat sides towards the operator. See Figure 4.19.

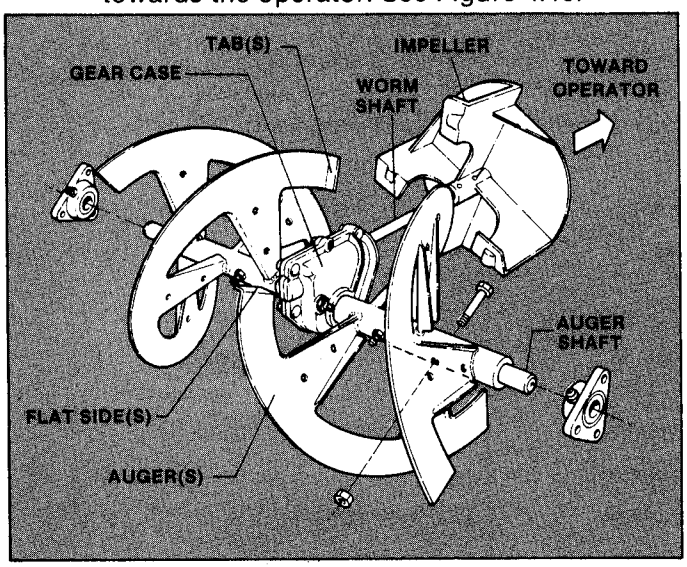


FIGURE 4.19

L. Drive out roll pins and remove impeller.

M. Remove bolts from auger gear case.

NOTE: Plated 5/16" screw is a breather for high-pressure greasing. DO NOT REMOVE!

N. Split gear case, being careful not to damage "O"-ring gasket. See Figure 4.20.

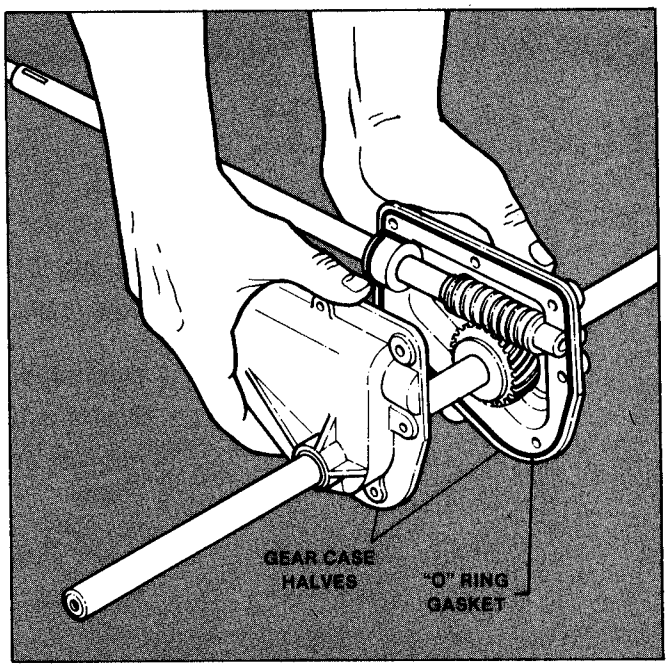


FIGURE 4.20

O. Remove worn shaft.

NOTE: At this point, inspect all bushings, oil seals, thrust washers, etc. and replace as required. Thoroughly clean all components and coat one side of gear case with GP grease to hold "O" ring into groove during reassembly.

P. Notice during reassembly of auger worm gear and shaft, that the machined surface (FLAT SIDE) of gear goes against the gear case half with the boss.

Q. Reassemble gear case halves and install two 1/4" bolts on opposite sides and tighten. If case halves stand apart, then the "O"-ring is not properly seated. Loosen bolts, seat "O"-ring and retighten bolts until case halves are properly mated.

R. After reassembly of gear case and shafts, rotate the shafts in both directions to make sure that parts are operating freely.

S. Relube gearbox with up to 5 ounces of SNAPPER "00" grease (factory-filled amount is 2 1/2 ounces of SNAPPER "00" grease) and again rotate shafts to check operation.

T. After making other required repairs, reassemble and install auger assembly in reverse order of steps above.

CAUTION

ONLY SNAPPER shear bolts should be used for attaching augers to auger shaft. Use of any other type bolt or pin could cause damage to the augers and/or machine.

SECTION V - TROUBLESHOOTING CHART

	SYMPTOM	PROBABLE CAUSE	REMEDY
ENGINE HARD TO START	Engine will not start.	Switch key not fully inserted	Fully insert key.
		Throttle in "Slow" position	Move to "Fast" position.
		Choke control not in "Full" position.	Move to correct position.
		Spark plug wire disconnected.	Reconnect.
		Fuel tank empty.	Fill tank.
	Engine stops suddenly.	Out of fuel.	Fill tank.
		Speed to low for conditions.	Increase Speed.
		Impeller jammed by solid object.	Clear impeller.
	Engine runs rough.	Spark plug fouled	Clean or replace.
	Choke left in "Full"	Turn choke to "Off" position. position	
		Water in fuel system.	Drain and refill tank.
LOSS OF POWER	Impeller operating	Idler pulley out of adjustment. erratically	Adjust to correct tension.
	Blower not throwing snow	Engine speed too low for conditions.	Increase speed.
		Forward speed too fast for snow depth.	Slow speed.
		Belt slipping	Adjust idler or replace belt.
		Clutch cable out of adjustment.	Adjust to correct tension.
		Auger bolts sheared.	Replace shear bolts.
	Auger stops rotating.	Shear pin missing or broken.	Replace shear pin.
		Belt slipping	Adjust idler or replace belt.
		Key on auger shaft sheared	Replace key. (in gear box)
		Gear teeth sheared.	Replace worm and shaft gears in gearbox.
	Wheels not driving	Direction control in neutral.	Shift to desired speed.
		Clutch cable out of adjustment.	Adjust to correct tension.
		Idler out of adjustment.	Adjust idler or replace belt.
		Drive gear key sheared.	Replace key.
		Drive disc rubber worn.	Replace rubber.

SECTION V - TROUBLESHOOTING CHART

	SYMPTOM	PROBABLE CAUSE	REMEDY
TROUBLE DURING OPERATION	Oil leaking.	Engine drain plug loose or missing.	Tighten or replace. Refill crankcase with oil.
		Gearbox overfilled.	Drain excess to proper level.
		Gearbox check plug loose or missing.	Tighten or replace. Refill gearbox with 2.5 ounces SNAPPER "00" grease.
		Auger shaft oil seals worn or damaged.	Replace seals. Refill gearbox with 2.5 ounces SNAPPER "00" grease.
	EXCESSIVE NOISE and/or vibration	Engine muffler loose or damaged.	Tighten or replace.
		Engine mounting bolts loose or missing.	Tighten or replace.
		Rubber drive disc loose or worn.	Tighten or replace.
		Impeller loose or damaged.	Tighten or replace.
		Engine knocking.	Remove and replace all worn or damaged parts.

NOTES

Section VI

SNAPPER MODEL **4220**

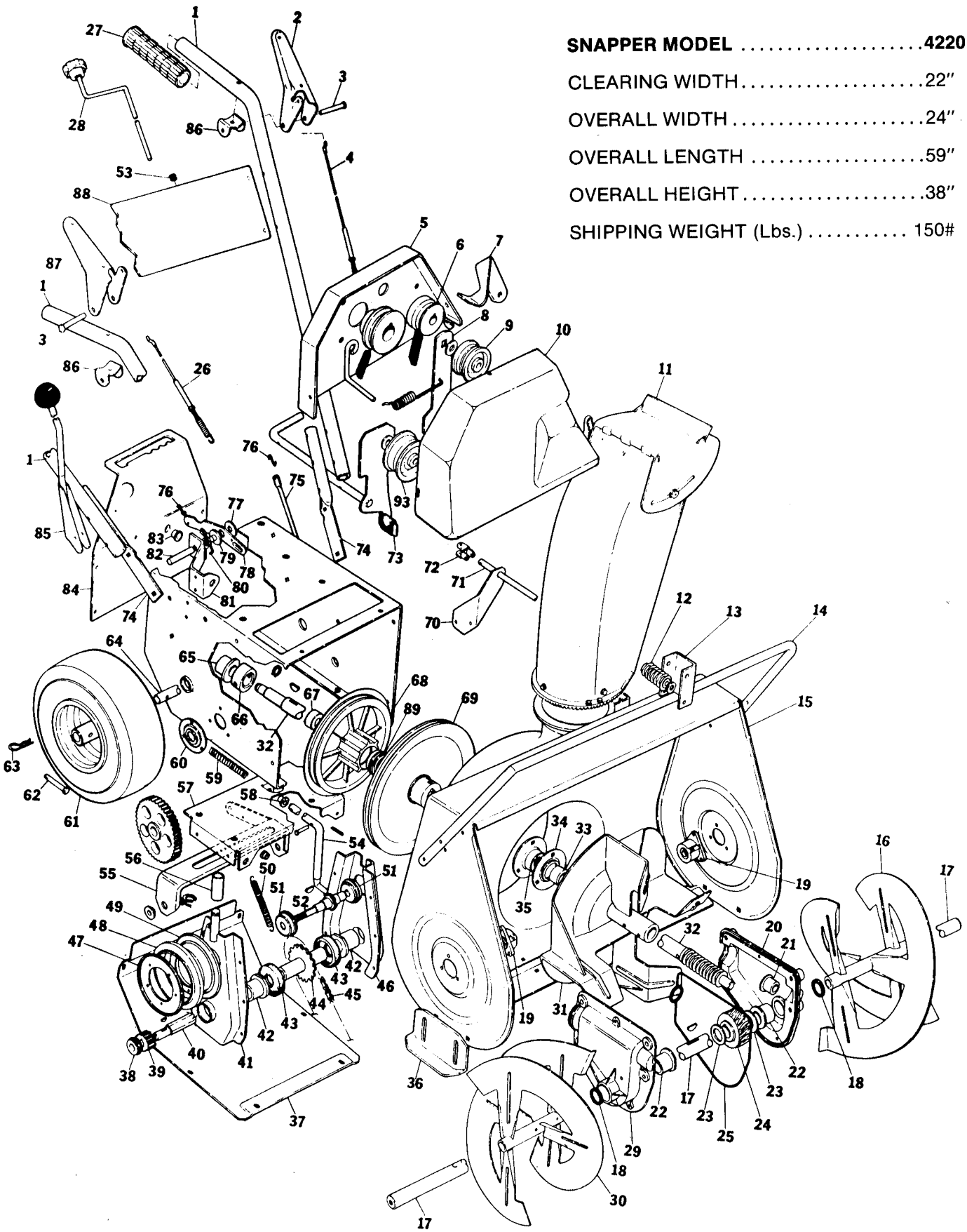
CLEARING WIDTH ..... 22"

OVERALL WIDTH ..... 24"

OVERALL LENGTH ..... 59"

OVERALL HEIGHT ..... 38"

SHIPPING WEIGHT (Lbs.) ..... 150#



Parts information is found in the SNAPPER PARTS MANUAL # 06044

Section VI — PARTS IDENTIFICATION

ITEM NO.	DESCRIPTION	ITEM NO.	DESCRIPTION
1	Handle Bar	45	Chain
2	Handle (left side)	46	Sprocket Cover
3	Clevis Pin	47	Plate
4	Clutch Cable (short)	48	Driven Ring
5	Engine Plate	49	Hub
6	P.T.O. Pulley	50	Clutch Spring
7	Belt Guide	51	Ball Bearing
8	Idler Bracket	52	Shaft and Sprocket
9	Idler	53	Bushing
10	Belt Cover	54	Shift Rod
11	Discharge Chute Assembly	55	Clutch Bracket
12	Worm	56	Roller
13	Worm Shaft Bracket	57	Engine Support
14	Drift Cutter	58	Bearing
15	Blower Housing	59	Shift Spring
16	Auger (left hand)	60	Bearing Retainer
17	Auger Shaft	61	Tire Assembly
18	Seal	62	Clevis Pin
19	Auger Shaft Bearing	63	Hair Pin
20	Gear Case Cover (left hand)	64	Axle Shaft
21	Bushing	65	Bearing
22	Bearing	66	Collar
23	Thrust Washer	67	Ball Bearing
24	Worm Gear	68	Drive Plate Assembly
25	"O" Ring	69	Sheave
26	Auger Cable (long)	70	Support Bracket
27	Handle Grip	71	Worm Shaft
28	Chute Crank Assembly	72	Connector
29	Gear Case Cover (right hand)	73	Brake Arm and Rod Assembly
30	Auger (right hand)	74	Handle Bar Brace
31	Fan Impeller	75	Clutch Rod
32	Worm Shaft	76	"S" Hook
33	Spacer	77	Washer
34	Bearing Housing	78	Lever
35	Ball Bearing	79	Bushing
36	Skid Shoe	80	Spring
37	Bottom Frame Cover	81	Bracket
38	Ball Bearing	82	Spacer
39	Pinion Gear	83	Bearing
40	Hex Shaft	84	Rear Frame Cover
41	Sprocket Case	85	Shifter Assembly
42	Bearing	86	Handle Bracket
43	Spacer	87	Handle (right side)
44	Hub and Sprocket	88	Control Panel
		89	Ball Bearing

SECTION VII - UNCRATING AND SETUP (NEW EQUIPMENT)

6.1 UNCRATING

Remove all banding, boxing, etc. required for shipping from around machine components. Inspect main unit, parts and parts bags for damage or missing parts.

6.2 SETUP

A. HANDLE BARS

Because of the average height factor, handle bars are normally installed in the lowest position (center and bottom holes). If installation is required for a taller operator (center and top holes) then extension s-hooks must be added to the clutch cables to compensate for the increased distance. See Figure 6.1.

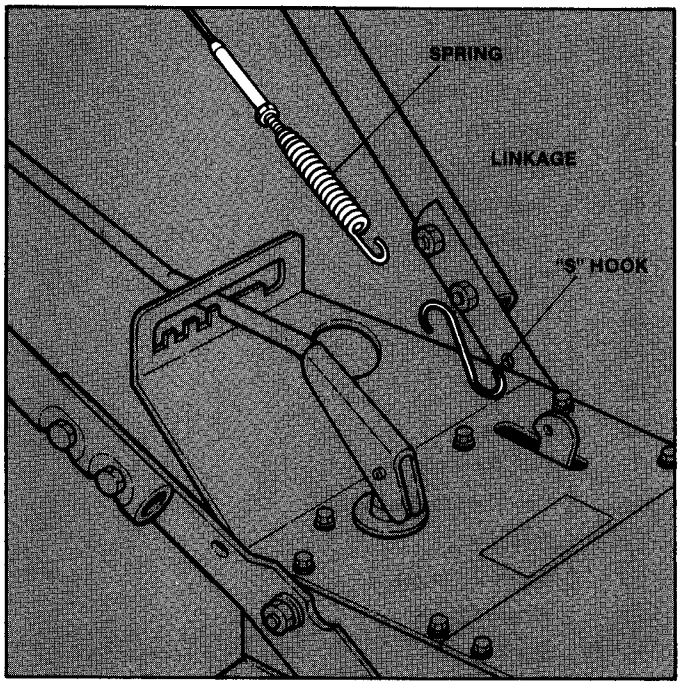


FIGURE 6.1

1. Attach TRACTION CLUTCH handle on L.H. side.
2. Attach BLOWER CLUTCH handle on R.H. side.
3. Install control panel between handles with provided hardware.

NOTE: All bolts MUST be installed with heads on outside.

B. CABLES

1. Attach shortest cable to TRACTION CLUTCH handle and, with "S" hook, to control rod.
2. Attach long cable to BLOWER CLUTCH handle and, with "S" hook, to bellcrank on rear of drive unit.
3. Adjust spring extension of both cables to 1/4" to 1/2" when handles are depressed. Tighten jam nuts after adjusting.

C. CHUTE

1. Tilt chute over discharge lip and install three, smooth-head stove bolts through openings. Attach nuts on outside of chute and tighten.
2. Attach three nylon retainers underneath ring with six self-tapping screws.

D. CHUTE CONTROL CRANK

1. Insert control crank through nylon bushing in control panel and align end with hole in worn rod clevis.
2. Install cotter pin through clevis and rod, binding ends of pin.
3. Rotate control crank for operational test.
4. Lubricate worn gear with GP grease.

E. AUGER

1. Check gear box for leakage (Lubricated during manufacture).
2. Check to make sure auger shear bolts are in place and tightened.
3. Inspect auger bearings and grease fittings. Make sure they have been properly greased.

F. CHAIN INSTALLATION

1. Tilt machine on end.
2. Remove wheels and deflate tires.
3. Install chains and inflate tires to not more than 24 P.S.I.
4. Install wheels.

G. ENGINE OIL

1. Refer to Engine manufacturer's manual.
2. Fill engine to specified level with proper grade of oil.

Set-up unstructions are included with the machine and are repeated in this manual

SNAPPER POWER EQUIPMENT
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